

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 1-15 are pending in the present application. Claims 1 and 10-13 are amended. Claims 14-15 are newly added. Claim 9 is withdrawn. Support for the amendments to Claims 1 and 10 is self-evident. Support for the amendment to Claim 11 can be found in the specification as published at least at paragraph [0149], for example. Support for the amendment to Claim 12 can be found in Claims 1 and 11, inasmuch as Claim 12 is placed in independent form. Support for the amendment to Claim 13 can be found in Claim 10, inasmuch as Claim 13 is placed in independent form. Support for newly added Claims 14-15 can be found in Figure 8, for example. Thus, no new matter is added.

In the outstanding Office Action rejected Claims 11-12 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement; rejected Claims 1-8 and 10 under 35 U.S.C. § 103(a) as unpatentable over Nelson et al. (U.S. Patent No. 6,529,377, herein “Nelson”); and rejected Claim 11 under 35 U.S.C. § 103(a) as unpatentable over Nelson in view of Yazu et al. (U.S. Patent No. 5,124,884, herein “Yazu”).

Claims 12-13 were indicated as allowable if rewritten in independent form. Applicants acknowledge with appreciation the indication of allowable subject matter. In response, Claims 12-13 are rewritten in independent form.

In response to the rejection of Claims 11-12 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, Claims 11-12 are amended to correct the noted informalities. Accordingly, Applicants respectfully request the rejection of Claims 11-12 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Applicants respectfully traverse the rejection of Claims 1-8 and 10 under 35 U.S.C. § 103(a) as unpatentable over Nelson.

Amended independent Claim 1 recites a heat transport device that includes a first base plate with a liquid suction and retention unit configured to retain a liquid-phase working fluid by capillary force, and a second base plate that faces the first base plate. The second base plate includes a second concavity that cooperates with the body with protrusions on a bottom face so as to define a liquefaction chamber configured to liquefy the gas-phase working fluid vaporized at the vaporization chamber to the liquid-phase working fluid, a first ditch that defines a channel configured to transport the gas-phase working fluid from the vaporization chamber to the liquefaction chamber, and a second ditch that defines a further channel configured to transport a liquid-phase working fluid from the liquefaction chamber to the liquid suction and retention unit.

Turning now to the cited art, Nelson describes an integrated cooling system. The outstanding Office Action asserts that the claims of the present invention do not structurally define over Nelson. However, Applicants respectfully note that MPEP § 2173.05(g) states:

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. In *Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." "In the absence of modifiers, general descriptive terms are typically construed as having their full meaning." Id. at 1118, 72 USPQ2d at 1006. In the patent claim at issue, "subject to any clear and unmistakable disavowal of claim scope, the term 'operatively connected'

takes the full breath of its ordinary meaning, i.e., 'said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." Id. at 1120, 72 USPQ2d at 1008.

Accordingly, functional features must be evaluated for what they mean to a person of ordinary skill in the art.

The outstanding Office Action asserts that the second set of fins (335) in Nelson are a liquid suction and retention unit.¹ However, Applicants respectfully note that the fins (335) described in Nelson are not a liquid suction and retention unit. The fins (335) in Nelson are not configured to retain a liquid-phase working fluid, much less retain a liquid-phase working fluid by capillary force. Instead these fins (335) enhance heat transfer within the right cavity (315B).² Furthermore, the fins (335) in Nelson may be discarded if the cavities (315A), (315B) are spaced significantly proximal to each other and if the center layer (305C) is relatively thin.³ Accordingly, Applicants respectfully submit that a person of ordinary skill in the art would understand that the fins (335) for enhancing heat transfer within the right cavity **are not** a liquid suction and retention unit, much less a liquid suction and retention unit configured to retain a liquid-phase working fluid by capillary force.

In addition, Nelson fails to describe a concavity that cooperates with a body with protrusions on a bottom face so as to define a liquefaction chamber configured to liquefy the gas-phase working fluid vaporized at the vaporization chamber to the liquid-phase working fluid. The outstanding Office Action asserts that the first set of fins (330) are a body with protrusions and that the left cavity (315A) is a second concavity.⁴ However, the left cavity (315A) does not cooperate with the first set of fins (330) so as to define a liquefaction chamber configured to liquefy the gas-phase working fluid vaporized at the vaporization

¹ See outstanding Office Action at page 2.

² See Nelson at column 5, lines 35-37.

³ See Nelson at column 5, lines 44-47.

⁴ See outstanding Office Action at pages 2-3.

chamber to the liquid-phase working fluid. In fact, Nelson is silent regarding a liquefaction chamber that liquefies gas-phase working fluid that is vaporized at a vaporization chamber to liquid-phase working fluid, as the cooling liquid in Nelson always remains in a liquid-phase. Nelson is also silent regarding a vaporization chamber as the cooling liquid in Nelson never changes into a gas-phase. In contrast, amended independent Claim 1 recites a working fluid that changes between a liquid-phase working fluid and a gas-phase working fluid.

Furthermore, Nelson fails to describe a ditch that defines a channel configured to transport a gas-phase working fluid from a vaporization chamber to a liquefaction chamber. Nelson also fails to describe a ditch that defines a channel configured to transport a liquid-phase working fluid from a liquefaction chamber to a liquid suction and retention unit. Instead, Nelson describes first and second tubes (320A), (320B) that connect the left cavity (315A) to the right cavity (315B) that form a closed loop circuit for a liquid to flow.⁵ In contrast, amended independent Claim 1 recites a ditch that defines a channel configured to transport a gas-phase working fluid from the vaporization chamber to a liquefaction chamber and a ditch that defines a channel configured to transport a liquid-phase working fluid from a liquefaction chamber to a liquid suction and retention unit.

Accordingly, for at least the above-noted reasons, Applicants respectfully submit that amended independent Claim 1 patentably distinguishes over Nelson. Although differing in scope, amended independent Claim 10 includes a recitation of substantially similar features with respect to amended independent Claim 1, and patentably distinguishes over Nelson for at least the same reasons that amended independent Claim 1 does. Therefore, Applicants respectfully request the rejection of Claims 1-8 and 10 be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claim 11 under 35 U.S.C. § 103(a) as unpatentable over Nelson in view of Yazu.

⁵ See Nelson at column 5, lines 21-27.

As discussed above, amended independent Claim 1 patentably distinguishes over Nelson.

Yazu fails to remedy the deficiencies discussed above regarding Nelson in relation to amended independent Claim 1. Instead, Yazu is silent regarding a heat transport device that includes a first base plate with a liquid suction and retention unit configured to retain a liquid-phase working fluid by capillary force and a second base plate facing the first base plate that includes a second concavity that cooperates with the body with protrusions on a bottom face so as to define a liquefaction chamber configured to liquefy the gas-phase working fluid vaporized at the vaporization chamber to the liquid-phase working fluid, a first ditch that defines a channel configured to transport the gas-phase working fluid from the vaporization chamber to the liquefaction chamber, and a second ditch that defines a further channel configured to transport a liquid-phase working fluid from the liquefaction chamber to the liquid suction and retention unit.

Accordingly, no reasonable combination of Nelson and Yazu would include all of the features recited in amended independent Claim 1, or Claim 11 depending therefrom. Therefore, Applicants respectfully request the rejection of Claim 11 under 35 U.S.C. § 103(a) be withdrawn.

Newly added dependent Claims 14-15 each depend, directly or indirectly, from amended independent Claim 1 and patentably distinguish over Nelson for at least the same reasons that amended independent Claim 1 does.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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